problems involving areas; problems involving volumes; problems involving simple number relations; problems involving motion; problems involving the simple lever; problems involving densities; problems on momentum; problems on thermometer readings. Were there no other distinguishing features, the problems alone would justify the appearance of the book. They amply confirm the authors' statement that "the main purpose of the elementary course is the solution of problems rather than the construction of a purely theoretical doctrine as an end in itself."

Characteristic of the treatment is the enunciation in eighteen short statements of the principles of algebra used in the elementary course. "Each of these is obtained by induction from simple, concrete examples. These principles are not designed to form a body of fundamental assumptions from which a deductive system may be obtained, but are intended to furnish a codification of the learner's information on algebra in a form immediately adapted for use. The emphasis is not on the theoretical but on the practical side." In deference to the immaturity of the pupil these principles receive no formal demonstration. Logically considered they give character and consistency to the entire treatment and lead inevitably to a treatment, at some later period, based on the three so-called fundamental laws, such, for instance, as is given in Chrystal's textbook. Thus the authors have so wrought that while the student may have much more to learn than is given in this book, yet for the purposes of later study he shall have a minimum to unlearn.

In its gain of simplicity by keeping essentials constantly in the fore, in its appeal to the learner by emphasis on important applications and on graphical methods, in its solicitude that he be not forced prematurely into purely abstract, symbolic reasoning, the book embodies the best results of recent studies on the teaching of algebra. It will arouse enthusiasm in the classroom and merits a wide adoption. On textbook and teaching methods it will exert, we believe, a profound influence.

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Principles of Intellectual Education. By F. H. MATTHEWS. Cambridge: The University Press; New York: G. P. Putnam's Sons.

There is a characteristic difference between English and American books on education. With but few exceptions, English writers treat the subject in a systematic, logical manner. They seek to establish their principles mainly by making them appear to be reasonable. They do not employ to any great extent experimental data or the views of other writers. The present reviewer generally feels when he is reading an English book on education that he is following a close line of reasoning, rather than surveying a body of facts derived from observation or experiment. On the other hand, American books, taken as a whole, are not systematic or logical. The method of treatment is not so much one of sound argument from general propositions, as the presentation of concrete material derived from biology, psychology, ethics, and related sciences, and the interpretation of these facts for a science and art of education. Some of the most useful of American books would be regarded by an Englishman as chaotic, for the different parts do not hang together nicely and logically.

The chief interest of the American educationist seems to be in observed and tested facts, even if these are not closely articulated.

The book before us is a good illustration of the English method of treating educational theory. The conclusions reached, however, seem somewhat in advance of many English books of this character. The doctrine of formal discipline is abandoned for the most part, though it is retained for the purpose of validating certain subjects of study, especially grammar. On p. 14 the author expresses his opinion to the effect that the acquisition of exactness in any one field does not insure exactness in other and different fields, and the principle, he claims, holds in daily life as in the schoolroom. But on p. 77 he makes a plea for the retention of grammar in the curriculum, because "it is a formal study of vast importance in strengthening the abstract powers of the mind. It trains observation and thoughtful analysis; it leads on gradually to logic." It seems to the present reviewer that these latter propositions are in direct contrast to positions taken elsewhere in the book. American educators have almost completely abandoned the doctrine of formal discipline. They would say that if grammar contributes to an individual's efficiency in daily life it has educational value; otherwise it is valueless.

The author says that the aim of education should be the development of flexibility and exactness in mental function. The former quality gives one insight, originality, breadth of outlook, while the latter insures that we "lose as little effort as possible, always following the safest course to our goal—the correct interpretation of facts laid before us, the drawing of valid conclusions, the separation of the true from the false, the proper adaptation of means to ends" (p. 9). The book is devoted mainly to showing how we may develop these mental qualities in our pupils. The conclusions reached are in large part in accord with contemporary theory in our own country.

In the early years, especial attention must be given to work involving the use of the senses and the hand. At the outset the work must deal with things, and be suited to the needs and interests of the child. We must always proceed from the simple to the complex, but this, being interpreted, means that we must begin with what is familiar to the child, and move outward to what is least familiar. Psychological and logical methods are often diametrically opposed to one another. The author everywhere strikes hard against mere formal methods of teaching; he makes a plea for naturalism in all the work of the school. Abstract work must be based upon preceding concrete experience. Definitions must grow out of direct contact with the realities governed by the definitions. We must be on our guard against making undue use of the memory in teaching. What we should develop is ability of a dynamic sort, rather than mere acquisitive power. The book can be strongly commended to teachers as, on the whole, an orderly exposition of contemporary educational ideals.

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A Guide for Laboratory and Field Work in Zoölogy. By HENRY R. LINVILLE and HENRY A. KELLY. Boston: Ginn & Co., 1906. Pp. v+104.

This guide was designed particularly to accompany Linville and Kelly's *General Zoölogy,* which was reviewed recently in these columns. It may also